

Work Order ID 164801

Monday, July 31, 2017 10:18:03 AM



164801

U/R

Page 1

Item ID: D4766-041 Accept *N900040100* Setup Start *NS1*
 Revision ID: URF 17-547 Stop *NS2*
 Item Name: Skidtube Assembly
 Start Date: 8/11/2017 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 8/22/2017 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: Date: JUL 31 2017 Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Total ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4766 Positive Recal E									
120	Skidtubes	0.00							
120	Skidtubes	1.01							
Skidtubes	Meqpo								
Skidtubes	1- Cut Aft end as per dwg D4766								
	2- Deburr ends								
	3-Drill Aft & Fwd Cap holes using DT8678 & DT8901***DO NOT OPEN AFT CAP HOLES***								
	4- Locate DT_____ Pilot Drill all X-Bolt holes using #30" drill. & Drill Ground wire hole on top of Tube.								
	5-Drill holes for D5520-1 doubler using DT10309 A & B, locating from 7th and 8th crossbolt holes from aft using .1875 clekos. Spot drill tube using #20 drill (note 10). Remove DT10309 B. Re-install DT 10309 A drill thru tube and doubler using #20 drill (note 10), cleko as you go. Remove .1875 clekos and open holes in tube and doubler to 0.750". Remove doublers and identify orientation.								
	6-Countersink rivet holes in skid tube detail M ***NOTE*** 29 places only.								
	6- Open ground wire hole .297" section D-D (1) place and detail "T" (2) place.								
	7- Open Aft & Fwd Cap holes using 0.208" drill.								
	8- Deburr holes.								

1 0 8817-0725

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
		OTHER : _____			

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140

QC5- Inspect part completeness to step on W/O

0.00

140

QC

Memo

0.02

Quality Control

DAS
38
9-88
9

AUG 7 5 2017

150

Chemical Conversion Coat per QSI005 4.1

0.00

150

HandFinish

Memo

0.71

Hand Finishing

BK
17-08-25

160

QC7-Inspect Chemical Conversion Coat

0.00

160

QC

Memo

0.01

Quality Control

DAS
47
9-89

17-08-25

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170		0.00							
170	Skidtubes					<u>1</u>	<u>0</u>	<u>17-08-25</u>	<u>BB</u>
Skidtubes	Memo	1.71							
1-Install doublers using DT10309 B. Shave rivets as required. Detail M.									
2- Bond web as per Dwg D4766 & QSI015									
A/R 241 Sike Flex Batch: <u>13-7-946</u>									
Exp Date: <u>18/03/29</u>									
start time: _____									
end time: _____									
***NOTE, 35.9" FROM AFT END AS PER DWG D4766. SHEET 6									

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Page 4

[illegible]

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164801

Page 5

Accept

N900040100

```

Setup  Start  *NS1*
        Stop   *NS2*

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Run Start *NR1*
Stop *NR2*

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**Reject
Qty.**

Reject
Number

**Insp.
Stamp**

185

0.52

185

Skidtubes

Skidtubes

Memo

1.12

1- Bend aft tube as per dwg VERIFY HEIGHT and record:

2- Remove bending mark and mark center line on end of tube

3- Drill AFT float holes using DT _____ A,B,C.

4- Open X-Bolt holes to size as per Dwg B-766 and detail K

5- Drill Rivet Holes as per Dwg D4766 Using DT10065

6- Deburr Rivet holes & 0.750" holes and touch up alodine rivet holes only.

7- Seal all faying surfaces using proseal and rivet Doubler as per Dwg D4766.

A/R Proseal Batch: 1312953

12H CURE TIME START TIME: 10/17

NOTE: SHAVE RIVET AFTER 12HRS CURE TIME.

8- Ream holes to finish size and Swage x-bolt spacers as per Dwg D4766 and section C-C

9- Trim/Grind flush per QSI 002

10- Swage x-bolt spacer as per dwg D4766 section G-G. Trim and grind flush.
Open thru holes 0.625"

11- Deburr and blow out chips from inside of tube.

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Page 6

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188									17-08-29
QC	Memo	0.02							
Quality Control									
210	Pressure Wash per QSI005 4.3	0.00				①	8	2017-08-29	JSC
210									BEB
HandFinish	Memo	0.72							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.								
220		0.00				1		AUG 31 2017	DAS
220									13
SprayPaint	Memo	2.00							9-89
Spray Painting	1- Apply Primer as per QSI 005 4.2.1.3.3 and dwg A/R Primer Batch: _____ 2- Paint White as per QSI 005 4.2.2.4 and dwg A/R Paint Batch: _____								

Resewing

DAS
6
9-89

AUG 31 2017

primer
cent source paint

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : _____			

Work Order ID 164801

Monday, July 31, 2017 10:18:03 AM

164801

Page 7

Item ID: D4766-041 Accept *N900040100* Setup Start *NS1*
Revision ID: URF 17-547 Stop *NS2*
Item Name: Skidtube Assembly
Start Date: 8/11/2017 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 8/22/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	QC14- Inspect Spray Paint	0.00							
230									
QC	Memo	0.01							
Quality Control									

D 17.09.05 PD

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date: _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
								OTHER : _____	

Work Order ID 164801

Monday, July 31, 2017 10:18:03 AM

164801

Page 8

Item ID: D4766-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: URF 17-547 Stop ***NS2***
Item Name: Skidtube Assembly
Start Date: 8/11/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 8/22/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260		0.00							
260	HandFinishing								
HandFinish	Memo	1.41							
Hand Finishing	1- Install Ground Wire inserts as per Dwg D4766.								
	2-Inspect for Foreign objects								
	3-Wet Install hose sheild D5534-1 section P-P and note 12.								
	A/R Proseal Batch: <u>M1137995</u> <u>1118</u> <u>40</u>								
	12H CURE TIME START TIME: <u>1020am</u>								
	NOTE: SHAVE RIVET AFTER 12HRS CURE TIME.								
	4- Install Fwd & Aft caps as per Dwg D4766 and Detail "A" & "B". Fasterner must be install wet as per note (9).								
	A/R 241 Sika Flex Batch: <u>M1137946</u>								
	Exp Date: <u>12/03</u>								
	5- Wing Walk as per Dwg D4766 and QSI 005 4.4								
	Batch: <u>M1137943</u>								

12 9 12/09/16

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																							
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :	
Misidentified ☐	Past Due ☐																																																														

Work Order ID 164801

Monday, July 31, 2017 10:18:03 AM

164801

Page 9

Item ID:	D4766-041	Accept	*N900040100*	Setup	Start	*NS1*
Revision ID:	URF 17-547				Stop	*NS2*
Item Name:	Skidtube Assembly					
Start Date:	8/11/2017	Start Qty:	1.00	*1*	Cust Item ID:	
Required Date:	8/22/2017	Req'd Qty:	1.00	*1*	Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:		Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	QC5- Inspect part completeness to step on W/O	0.00							
270									
QC	Memo	0.02							DAS 9 9-89
Quality Control									
300	Identify as per dwg & Stock Location:	0.00							
300	Packaging								DAS 27 9-89
Packaging	Memo	0.01							SEP 07 2017
Packaging									
310	QC21- Final Inspection - Work Order Release	0.00							
310									
QC	Memo	0.10							17/9/8
Quality Control									

POSITIVE RECALL

EFFECTIVE 17.09.01 AUTH N.O.
RELEASED 0 DATE 17.09.06
Drawing not signed approved
OS for ECN 17-547

DAS
21
9-89

SEP 07 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : _____									

Picklist Print

Page 1

Monday, July 31, 2017 10:18:03 AM

Work Order ID: 164801

164801

Parent Item: D4766-041

D4766-041

Parent Item Name: Skidtube Assembly

Start Date: 8/11/2017

Required Date: 8/22/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 13.04.17 NEW ISSUE DD VERF:JLM IPP REV:B
13.08.08 PB2 DD VERF:JLM IPP REV:B 13.08.26
PB3 DD VERF:JLM IPP REV:C 13.11.14 AS PER
DWG REV.B DD VERF:JLM IPP REV:D 15.06.10 AS PER DWG
REV.C DD VERF:JLM IPP REV:E 16.03.23 AS PER DWG REV.D
DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN526C1032R10		Purchased	No			260	Each	117.0000	2	2			
AN526C1032R10													
Screw													

Location	Loc Qty	Loc Code
FP001	17	
m135133	17	
ST327	100	
m137851	100	

CR3212-5-05		Purchased	No				Each	300.0000		58			
CR3212-5-05													
Rivet													

Location	Loc Qty	Loc Code
CCK003	300	
m138040	300	

CR3213-5-06		Purchased	No				Each	0.0000		10			
CR3213-5-06													
Cherry Rivet													

D2965-3		Manufactured	No			260	Each	66.0000	1	1			
D2965-3													
Cap													

Location	Loc Qty	Loc Code
FP001	66	
126369	66	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By																																																									
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								QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

Picklist Print

Page 2

Monday, July 31, 2017 10:18:03 AM

Work Order ID: 164801

164801

Parent Item: D4766-041

D4766-041

Parent Item Name: Skidtube Assembly

Start Date: 8/11/2017

Required Date: 8/22/2017

Start Qty: 1.00

Required Qty: 1.00

D2973 Manufactured No 260 Each 30.0000 2 2

D2973

Cross Bolt Spacer

**

Location

Loc Qty

Loc Code

LG001

30

144627

30

D4766-041-BENT

Manufactured No

120

Each

0.0000

1

1

D4766-041-BENT

**

Extrusion Bent

D5085-1

Manufactured No

170

Each

6.0000

1

1

D5085-1

Web

**

Location

Loc Qty

Loc Code

LG002

6

146172

6

D5304-1

Manufactured No

260

Each

24.0000

2

D5304-1

Crossbolt Spacer

**

Location

Loc Qty

Loc Code

LG001

24

145050

4

146516

1

161952

19

D5520-1

Manufactured No

Each

0.0000

2

D5520-1

Doubler

D5534-1

Manufactured No

Each

0.0000

2

D5534-1

Hose Shield

**

Monday, July 31, 2017 10:18:03 AM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : _____									

Picklist Print

Page 3

Monday, July 31, 2017 10:18:03 AM

Work Order ID: 164801

164801

Parent Item: D4766-041

D4766-041

Parent Item Name: Skidtube Assembly

Start Date: 8/11/2017

Required Date: 8/22/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

260

Each

3,846.000

5

5

NAS1149C0332R

WASHER

**

all 12/09/05

Location

Loc Qty

Loc Code

FP001

798

11138233

m137951

798

X3

GA

494

m133284

22

m136444

472

ST260a

1946

m137851

1946

ST266

608

m137381

608

D4686-1

Manufactured

No

260

Each

64.0000

11

11

D4686-1

Spacer

**

17-08-29

Location

Loc Qty

Loc Code

LG001

64

145075

44

146515

20

11

D4753-1

Manufactured

No

260

Each

53.0000

22

22

D4753-1

Doubler

**

BE 17-08-28
8161507 x 22

Location

Loc Qty

Loc Code

LG001

53

153498

7

161929

23

162891

23

AELS-1032-130

AELS8-1032-130 Purchased

No

260

Each

0.0000

3

3

AFI S-1032-130

Rivnut

**

AHS4-1032-130 / M137820 X

Monday, July 31, 2017 10:18:03 AM

Shop Packet Print

Page 3

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Monday, July 31, 2017 10:18:03 AM

Work Order ID: 164801

164801

Parent Item: D4766-041

D4766-041

Parent Item Name: Skidtube Assembly

Start Date: 8/11/2017

Required Date: 8/22/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

260

Each

1,141.000

3

3

AN3C4A

Bolt

**

see 13/05/10

Location

Loc Qty

Loc Code

FG

20

122814

20

FP001

183

M136450

23

M136740

8

M136986

20

M137075

43

M137164

2

M137361

5

M137820

82

OVER002

925

M137507

150

M137587

250

M137963

400

M138040

125

ST350

13

M135704

13

MS20601-AD4W3

Purchased

No

260

Each

409.0000

44

44

MS20601-AD4W3

Rivet

**

BK170828
m138238 x 48

Location

Loc Qty

Loc Code

CCK004

100

m137963

100

LG001

199

m137459

3

m137820

196

ST308

110

m137587

110

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : _____									

Picklist Print

Page 5

Monday, July 31, 2017 10:18:03 AM

Work Order ID: 164801

164801

Parent Item: D4766-041

D4766-041

Parent Item Name: Skidtube Assembly

Start Date: 8/11/2017

Required Date: 8/22/2017

Start Qty: 1.00

Required Qty: 1.00

D2965 Manufactured No 260 Each 28.0000 1 1

D2965

Cap

**

xl 12/09/05

Location

Loc Qty

Loc Code

FP001

28

127852

28

xl

AN3C5A

Purchased

No

260

Each

1,280.000

2

2

AN3C5A

Bolt

**

xl 12/09/08

Location

Loc Qty

Loc Code

FG

5

122800

5

FP001

409

M137361

409

OVER002

800

M137710

200

M137963

600

ST350

66

x2

M135442

66

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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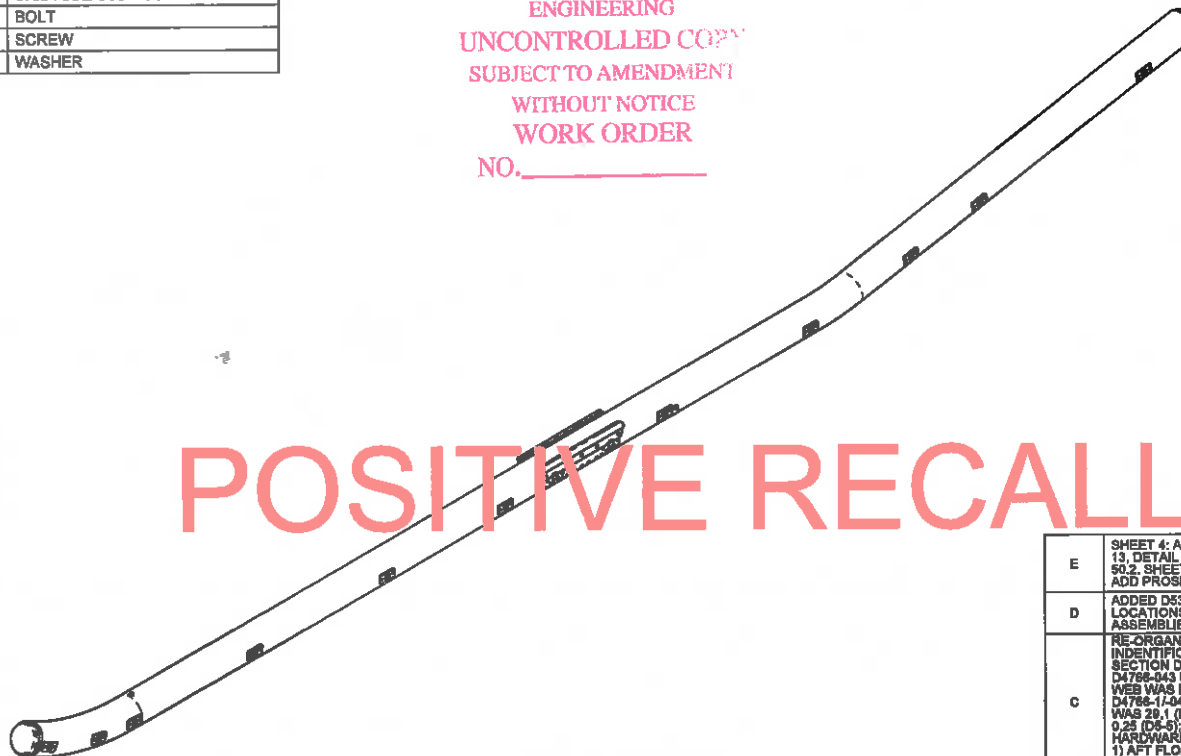
ITEM	QTY	P/N	DESCRIPTION
	X	D4766-041	SKIDTUBE
1	1	D2865	CAP
2	1	D2865-3	CAP
3	1	D4766-043	SKIDTUBE SUB ASSY
4	2	AN3C5A	BOLT
5	2	AN528C1032R10	SCREW
6	2	NAS1149C0332R	WASHER

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. _____

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RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 164201

JUL 31 2017

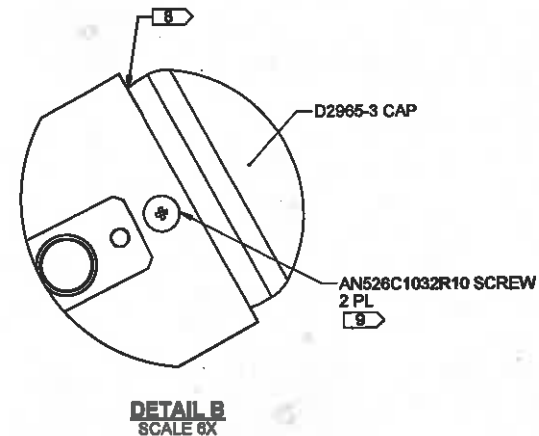
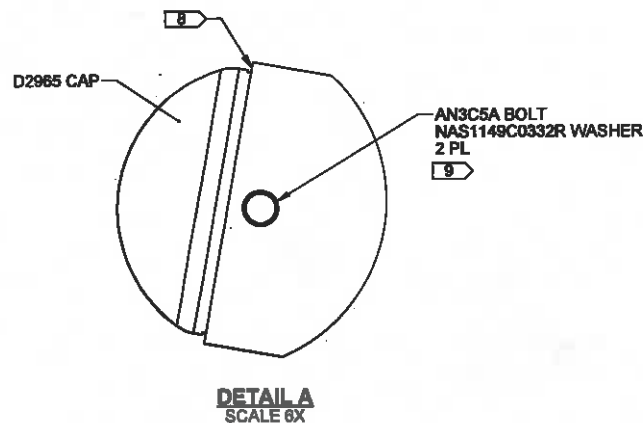
POSITIVE RECALL



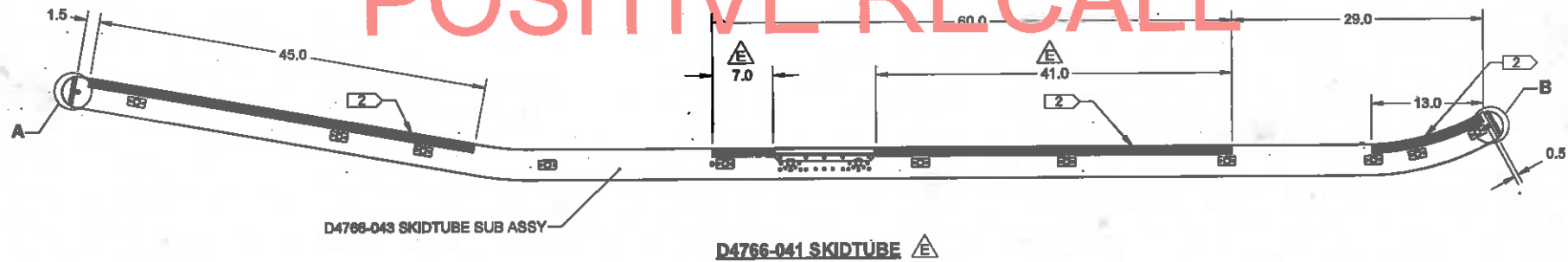
D4766-041 SKIDTUBE

E	SHEET 4: ADD ITEMS 3, 4, 5 & 6. SHEET 6: ADD NOTES 9-13, DETAIL M, SECTION N-N, SECTION P-P & DIM 35.9 WAS 50.2. SHEET 7: Ø0.186 DIM WAS Ø0.185. WEIGHT UPDATE. ADD PROSEAL 1422. REASON: NCR 17-6303, PARTS-519	AJS	17.03.30
D	ADDED D5304-1 SWAGED CROSSBOLT SPACER FOR GHL LOCATIONS, ADDED SHT 1. REMOVED D3482-055 PLUG ASSEMBLIES, RE-ORDER SECTIONS	AP	15.11.02
C	RE-ORGANIZED SECTIONAL/DETAIL VIEWS ALL SHTS; IDENTIFICATION MOVED FROM SHT 1 TO SHT 5; SECTION D-D AND DETAIL K 119L WAS 129" - MODIFIED D4766-043 FINISH; Ø0.760 WAS Ø0.758 (B4-3); D5065-1 WEB WAS D4766-1; VARIOUS MINOR DIM CHANGES TO D4766-1 (4048 TO MATCH STD SKIDTUBE PROFILE; 35.9 WAS 29.1 (B7-4); GROUNDING FASTENER MOVED AFT 0.25 (D5-6); D2865 HARDWARE AND GROUNDING HARDWARE CHANGED TO STAINLESS; ADD NOTE 9 (SHT 1) AFT FLOAT HOLES NOW DIMENSIONED AFTER AFT BEND	AP	15.02.26
B	FWD CAP WAS D2865 NOW D2865-3. D3492-055 WAS D3492-051. SWAGING NOW 0.850 WAS 0.861 (C7-2). ADDED BENDING DETAIL TO SHEET 4. MATERIAL D2862-190 WAS D2862-185 (A7-5). ADDED DETAIL L ON SHT 3. ADDED TOP VIEW ON SHT 5. REPLACED D4766-1 WITH D4827-041 ON SHT 3. GROUND HANDLING THRU HOLES SPACERS NOW WELDED, SEE SECTION H-H (B4-2). RE-ORDERED SECTIONS AND DETAILS.	AP	13.08.08
A	NEW ISSUE	AP	13.02.13
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE USA, INC. EUGENE, OR DRAWING NO. D4766 REV. E SHEET 1 OF 7 SKIDTUBE SCALE NTS COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS UNCLASSIFIED AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	
DRAWN	AJS		
CHECKED	ML		
MFG. APPR.	DP		
APPROVED	VM		
DE APPR.	DS	DATE 17.03.30	

APPROVED



POSITIVE RECALL



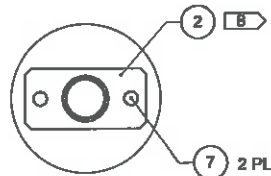
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 1.00 ABOVE CENTERLINE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 34.5 lbs
- 8) SEAL MATING SURFACES WITH SIKAFLEX -241/-201 OR PROSEAL P/S 890/1422 OR MIL-S-8802 CLASS B2 SEALANT
- 9) INSTALL FASTENERS WET WITH SIKAFLEX -241/-201 OR PROSEAL P/S 890/1422 OR MIL-S-8802 CLASS B2 SEALANT

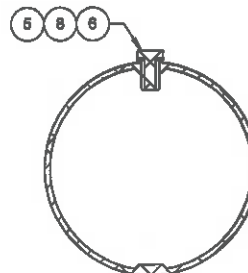
APPROVED

DESIGN	AP	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 2 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS UNCLASSIFIED AND IS RELEASED ON THE EXPRESS AUTHORITY THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR ON ANY INFORMATION RELAYED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

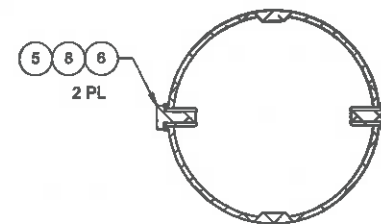
ITEM	QTY	P/N	DESCRIPTION
	X	D4766-043	SKIDTUBE SUB ASSY
1	11	D4686-1	SPACER
2	22	D4753-1	DOUBLER
3	1	D4766-045	SKIDTUBE SUB ASSY
4	2	D5304-1	CROSSBOLT SPACER
5	3	AELS-1032-130	INSERT
6	3	AN3C4A	BOLT
7	44	MS20601AD4W3	RIVET, BLIND, CSK
8	3	NAS1149C0332R	WASHER



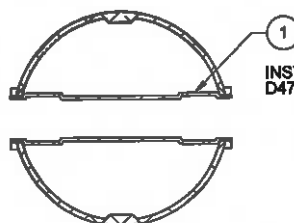
DETAIL E
SCALE 6X
22 PL



SECTION D-D
SCALE 6X



SECTION F-F
SCALE 6X



SECTION C-C
SCALE 6X
11 PL

INSTALL D4686-1 SPACER AFTER INSTALLING
D4753-1 DOUBLERS AS FOLLOWS (11 PL)

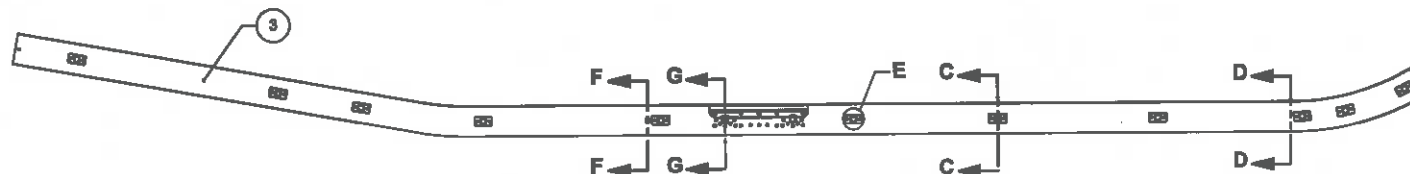
1. INSERT D4686-1 SPACER
2. SWAGE TO $\phi 0.650 \pm 0.004 \pm 0.000 \times 1.0$ DP PER QSI 002
3. TRIM, ROUND FLUSH PER QSI 002



SECTION G-G
SCALE 6X
2 PL

INSTALL D5304-1 SPACER AS FOLLOWS (2 PL)

1. INSERT D5304-1 SPACER
2. SWAGE TO $\phi 0.565 \pm 0.005 \pm 0.000 \times 1.0$ DP PER QSI 002
3. OPEN THRU HOLE TO $\phi 0.625$



D4766-043 SKIDTUBE SUB ASSY

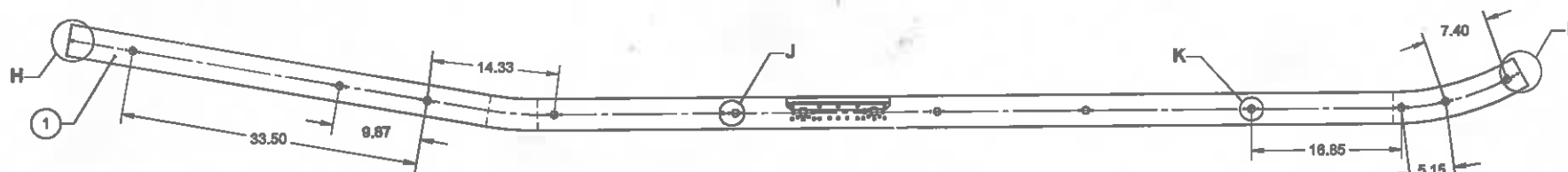
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME (REF 4.2.1.3.3) AND PAINT WHITE PER DART QSI 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 33.9 lbs
- 8) SEAL FAYING SURFACES USING PROSEAL P/S 890/1422 OR MIL-S-5902 CLASS B2 SEALANT

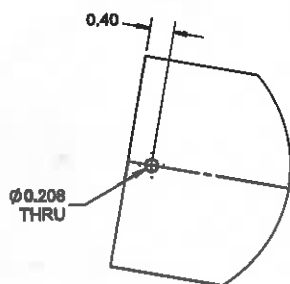
APPROVED

DESIGN	AP	DART AEROSPACE USA, INC.	
		EUGENE, OR	
DRAWN	AJS	DRAWING NO.	REV. E
CHECKED	ML	D4766	SHEET 3 OF 7
MFG. APPR.	DP	TITLE	SCALE
APPROVED	WM	SKIDTUBE	NTS
DE APPR.	DS	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC.	
DATE	17.03.30	THIS DOCUMENT IS PRIVATE AND UNCLASSIFIED, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR CARRIED ON OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

ITEM	QTY	P/N	DESCRIPTION
	X	D4766-046	SKIDTUBE SUB ASSY
1	1	D4766-1	SKIDTUBE
2	1	D5085-1	WEB
3	2	D5520-1	DOUBLER
4	2	D5534-1	HOSE SHIELD
5	58	CR3212-5-05	CSK RIVET, CHERRY MAX
6	10	CR3213-5-06	RIVET, CHERRY MAX



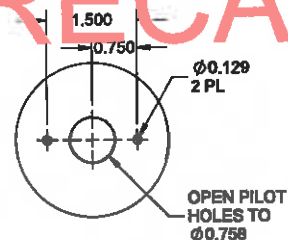
D4766-046 SKIDTUBE SUB ASSY A



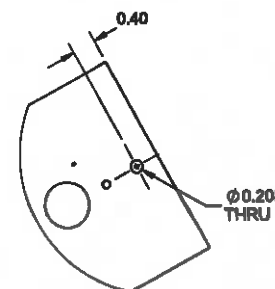
DETAIL H
SCALE 8X



DETAIL J
SCALE 4X



DETAIL K
11 PL (BOTH SIDES)
SCALE 6X



DETAIL L
SCALE 8X

POSITIVE RECALL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 32.9 lbs

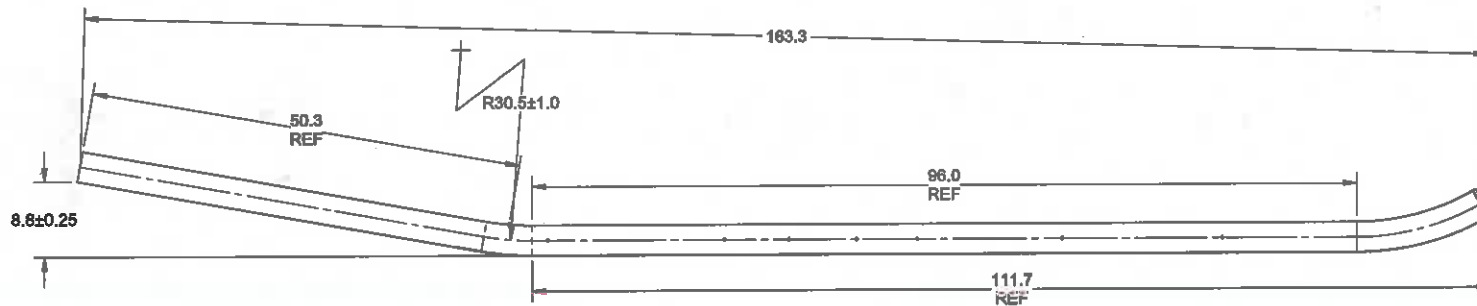
APPROVED

DESIGN	AP
DRAWN	AJS
CHECKED	ML
MFG. APPR.	DP
APPROVED	WM
DE APPR.	DS
DATE	17.03.30

DART AEROSPACE USA, INC.
EUGENE, OR

DRAWING NO.	REV. E
D4766	SHEET 4 OF 7
TITLE	SCALE
SKIDTUBE	NTS

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D4766-045 SKIDTUBE SUB ASSY
(BENDING DETAIL, AFT BEND)



D4766-045 SKIDTUBE SUB ASSY
(BENDING DETAIL, FWD BEND)

POSITIVE RECALL

APPROVED

DESIGN	AP	DART AEROSPACE USA, INC.	
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CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 5 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTB
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D4766-045 SKIDTUBE SUB ASSY
(ASSEMBLY DETAIL)

SECTION N-N

D5085-1 WEB

D4766-1 SKIDTUBE

SECTION P-P

DETAIL M
SCALE 7X

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) INSERT D5085-1 WEB INTO D4766-1 EXTRUSION IN LOCATION SHOWN AND BOND INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX -241/-281 ADHESIVE PER DART QSI 015.
- 9) LOCATE THE D5520-1 DOUBLER USING THE $\phi 0.188$ PILOT HOLES ON THE SKIDTUBE AND DOUBLER
- 10) LOCATE QTY (34) HOLES ONTO THE SKIDTUBE PER D5520-1 DOUBLER AND DRILL $\phi 0.181$ THRU SKIDTUBE AND DOUBLER USING DT 10309
- 11) COUNTERSINK THE SKIDTUBE $\phi 0.286 \times 100^\circ$ (29 PL) AND INSTALL EACH D5520-1 DOUBLER USING QTY (29) CR3212-5-05 CSK RIVETS
- 12) FOR INSTALLATION OF THE D5534-1 HOSE SHIELD:
-INSTALL ON FINISHED (PAINTED) SKIDTUBES ONLY
-COAT THE FAYING SURFACES WITH PROSEAL 890/1422.
-INSTALL THE QTY (5) CR3213-5-06 RIVETS WET USING PROSEAL 890/1422

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MFG. APPR.	DP	D4766	SHEET 8 OF 7
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DE APPR.	DS	SKIDTUBE	NTS
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POSITIVE RECALL



D4766-1 SKIDTUBE

NOTES:

- 1) MATERIAL: MAKE FROM D2962-190 EXTRUSION
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART B/N PER QSI 044 METHOD 6.4
ON INNER RADIUS OF AFT END OF SKIDTUBE
- 7) WEIGHT: 18.97 lbs

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DESIGN	AP	DART AEROSPACE USA, INC.	
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